

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>21581 WO-Bur</b>	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. <b>PCT/EP2004/000729</b>	International filing date (day/month/year) <b>28/01/2004</b>	(Earliest) Priority Date (day/month/year) <b>29/01/2003</b>	
Applicant  <b>ROCHE DIAGNOSTICS GMBH</b>			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☒ none of the figures is to be published with the abstract.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2004/000729

## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
  - a. type of material
    - ☒ a sequence listing
    - ☒ table(s) related to the sequence listing
  - b. format of material
    - ☒ in written format
    - ☒ in computer readable form
  - c. time of filing/furnishing
    - ☒ contained in the international application as filed
    - ☐ filed together with the international application in computer readable form
    - ☐ furnished subsequently to this Authority for the purpose of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07H21/04 C01D5/00 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07H C01D C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GRUNAU C., CLARK S.J., ROSENTHAL A.: "Bisulfite genomic sequencing: systematic investigation of critical experimental parameters" NUCLEIC ACIDS RESEARCH, vol. 29, no. 13, 2001, pages e65-1-e65-7, XP002241346 Oxford	8, 11
Y	cited in the application page e65-2, left-hand column "deamination"; page e65-3, table 1, entry 5 and 6  --- -/--	1-7, 9, 10, 12-14

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

13 May 2004

Date of mailing of the international search report

07/06/2004

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No

EP2004/000729

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HAYATSU H, WATAYA Y, KAI K: "The Addition of Sodium Bisulfite to Uracil and to Cytosine" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 92, no. 3, 1970, pages 724-726, XP002241347 cited in the application page 724, for last paragraph	11
X	RAIZIS A.M., SCHIMTT F., JOST J.P.: "A Bisulfite Method of 5-methylcytosine Mapping that Minimizes Template Degradation" ANALYTICAL BIOCHEMISTRY, vol. 226, 1995, pages 161-166, XP002241348 cited in the application	11
Y	page 162, "bisulfite reaction"; page 163, Fig 2 and 3; page 164, last paragraph; page 165-166, "Discussion"	1-7, 9, 10, 12-14
X	SABBAN E.L., BHANOT O.S.: "The effect of Bisulfite-induced C-U Transitions on Aminoacylation of Escherichia coli Glycine tRNA" THE JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 257, no. 9, 1982, pages 4796-4805, XP002241349 page 4797, right-hand column, "Kinetics for C-U transitions"	11
X	KUBAREVA E A ET AL: "DETERMINATION OF METHYLATION SITE OF DNA-METHYL-TRANSFERASE NLAX BY A HYBRID METHOD" BIOTECHNIQUES, EATON PUBLISHING, NATICK, US, vol. 33, no. 3, September 2002 (2002-09), pages 526-531, XP008009336 ISSN: 0736-6205 page 526, last paragraph	8, 11, 12
X	FEIL R ET AL: "Methylation analysis on individual chromosomes: improved protocol for bisulphite genomic sequencing" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 22, no. 4, 1994, pages 695-696, XP002106413 ISSN: 0305-1048 cited in the application page 695, left-hand column bottom	11
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International Application No  
EP2004/000729

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PAULIN RICHARD ET AL: "Urea improves efficiency of bisulphite-mediated sequencing of 5'-methylcytosine in genomic DNA" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 26, no. 21, 1 November 1998 (1998-11-01), pages 5009-5010, XP002210104 ISSN: 0305-1048 cited in the application page 5009, right-hand column ---	8,11
X	CLARK SUSAN J ET AL: "High sensitivity mapping of methylated cytosines" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 22, no. 15, 1994, pages 2990-2997, XP002210107 ISSN: 0305-1048 cited in the application page 2991 ---	11
A	US 4 844 880 A (BEAN SAMUEL L ET AL) 4 July 1989 (1989-07-04) column 4, line 62 - column 5, line 19 -----	1-14

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

EP2004/000729

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4844880	A	04-07-1989	NONE